DIRECTIONS

By BART

Take the Richmond line to the downtown Berkeley exit -- **not** the North Berkeley exit, and **not** the Ashby exit, just the **Berkeley** exit. Get off at the Berkeley exit, go up to the street level, and find our shuttle bus stop. It is on the north side of Center Street at its intersection with Shattuck Avenue next to the bank automatic teller machine.

By LBNL Bus

You can then take the shuttle bus to the Lab. Please note, visitors are required to bring visitor bus pass (can be requested through Visitor Pass site

https://visitorpass.lbl.gov/public_html/login.jsp),

email, or permission from lab host written on department letterhead. Please contact Yingying Kooyman at 510-486-6455 or at

ntkooyman@lbl.gov for details.

By Car

Take Highway 80 to the University Avenue exit. Drive east on University Avenue until Oxford

Earth Sciences Division
Lawrence Berkeley National
Laboratory
One Cyclotron Road
Berkeley, CA 94720

Welcome to Berkeley Lab's

EARTH SCIENCES
Division

ESD Distinguished Scientist Seminar Series

Topic: Numerical Methods for Large Scale Experimental Design
Speaker: Eldad Haber
Emory University
10:30 AM, Bldg. 50 Auditorium

Lawrence Berkeley National Laboratory

For inquiries, please contact:
Yingying Kooyman 510-486-6455
Web site:http://www-esd.lbl.gov/NewsAndEvents/SEMINARS/DISTINGUISHED/index.html

ABSTRACT

While experimental design for well-posed inverse linear problems has been well studied, covering a vast range of well-established design criteria and optimization algorithms, its ill-posed counterpart is a rather new topic. The ill-posed nature of the problem entails the incorporation of regularization techniques. The consequent non-stochastic error introduced by regularization, needs to be taken into account when choosing an experimental design. We discuss different ways to define an optimal design that controls both an average total error of regularized estimates and a measure of the total cost of the design. We also introduce a numerical framework that efficiently implements such designs and natively allows for the solution of large-scale problems. To illustrate the possible applications of the methodology, we consider a borehole tomography example and a two-dimensional function recovery problem.

Eldad Haber, Assistant Professor, Emory University.

BIOGRAPHICAL SKETCH

Eldad Haber is an Associate Professor in the Department of Mathematics and Computer Science at Emory University. He received his Ph.D in Geophysics and Applied Mathematics from the University of British Columbia (1997), working with Doug Oldenburg, followed by postdoctoral research in Computer Science with Uri Ascher. Since 2002, he has been on the faculty at Emory. His current research focuses on the field of scientific computing, with projects investigating computational inverse theory, computational electromagnetics, and medical image registration.

FUTURE SPEAKERS

Kevin Rosso
Environmental Molecular Sciences Laboratory
Pacific Northwest National Laboratory
Richland, WA
November 7, 2008

Peter Lichtner
Los Alamos National Laboratory, New Mexico
January 9, 2009

Martin Polz
Civil and Environmental Engineering
Massachusetts Institute of Technology
Cambridge, MA
February 6, 2009

Jerald Schnoor
Civil and Environmental Engineering
The University of Iowa
March 6, 2009

SCHEDULE

10:30 am
Talk and Discussion, B50 Auditorium

12:00 noon - 1:30 pm
"Brown Bag" style lunch, Bldg 54-Room 2, Cafeteria with students, post-docs

2:00 pm
Meeting with ESD scientists

The ESD Distinguished Scientist Series is a monthly seminar featuring eminent individuals from various disciplines in the scientific community whose research is outstanding, interdisciplinary, and of broad interest to strategic interest initiatives in the earth sciences. Speakers normally spend a full day with researchers at Earth Sciences Division, LBNL, and the University of California, Berkeley.

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